PHARMACEUTICS-I (BP103T)

UNIT: 4 (Suppositories, Pharmaceutical incompatibilities)

CLASS: 7

TOPIC: Pharmaceutical incompatibility

Soluble Iodides Incompatibility

i. Oxidation of iodides with ferric salts

Ferric salt react with soulble iodide forms ferrous salt Substitute ferric salt with iron and ammonium citrate.

ii. Oxidation of iodides with potassium chlorate

Soluble iodides react with potassium chlorate Free iodine is liberated Two reacting substances must be dispensed separately

iii. Oxidation of iodides with quinine sulphate Quinine sulphate is not freely soluble in water. It is made soluble in Dil.H2SO4 The sulphuric acid liberates hydroiodic acid, the hydroiodic acid is partly oxidised by the sulphuric acid, yielding iodine. The iodine, hydroiodic acid and quinine sulphate then combine to form a compound called herapathite or iodo-sulphite of qunine.

1. Patient should be supplied with a mixture for 3 days only.

2. In case, patient requires a mixture for more than 3 days both the solutions are prepared in half the volume of water & supplied in a separate bottle.

Chemical Incompatibilities Causing Evolution of carbon Di-oxide Gas

When carbonates and bicarbonates are dispensed in the presence of an acid or acidic drug in mixture, they react together with the evolution of carbon dioxide gas.

i. Sodium bicarbonate with soluble calcium or magnesium salts Decomposition reaction forms. Carbon dioxide is evolved. Diffusible precipitates Reaction must be accelerated by using hot water.
Correction: Method A

ii. Bismuth sub nitrate and sodium bicarbonate Carbon dioxide is evolved. Reaction must be accelerated by using hot water & mixture should not be transferred to a bottle until the

effervescence ceases. iii. Borax with sodium bicarbonate and glycerine Carbon dioxide is evolved. Mixture should not be transferred to a bottle until the effervescence ceases.

Miscellaneous Chemical Incompatibilities

i. Soluble barbiturates with ammonium bromide Soluble barbiturate with ammonium bromide in presence of water

Reaction: Indiffusible precipitates

Correction: Method B

ii. Potassium chlorate with oxidisable substances Potassium chlorate with charcoal, sulphur, sugar organic compounds, during dispensing if heating or trituration is done there are chances of explosion. Separately powdered substance in dry and clean mortar and mixed with a clean spatula on ointment tile without any friction.

iii. Incompatibility of emulsifying agents
Emulsions prepared with alkali metal, ammonium and triethanolamine soaps are incompatible with salts producing polyvalent cations. Due to double decomposition, a polyvalent soap is formed which inverts the emulsion. Sometimes an emulsifying agent cause an inversion in an emulsion product.

iv. Colour stability of dyes
The colour of the most of the dyes used in pharmaceutical formulations are influenced by their ionization which depends on pH of the solution.

v. Incompatibilities of liquorice liquid extract.
Liquorice liquid extract is not useful as a flavouring agent in acidic mixtures. Diffusible ppt forms, hence Method A used.

5 MARKS QUESTIONS

1. Explain any two reactions which causes chemical incompatibility.

10 MARKS QUESTIONS

1. Explain about the chemical reactions which lead to chemical incompatibility with examples.